



JORIO, PRATO, BOGGIO & Partners

Via Viotti, 9 - 10121 Torino - Italia

Tel. +39-011.561.13.20; Fax +39-011.562.21.02

Videoconference +39-011.518.42.48 (6 ISDN channels H.320)

E-mail: info@studiotorta.it Internet: www.studiotorta.com

Industrial Property Consultants - Established in 1879

European and Italian Patent Attorneys

European and Italian Trade Mark and Design Attorneys

TURIN MILAN BOLOGNA TREVISO RIMINI ROME

**To the International Preliminary
Examining Authority
EUROPEAN PATENT OFFICE
PB 5818 Patentlaan 2
NL-2280 HV Rijswijk
OLANDA**

Paolo Jorio
Roberto Prato
Luigi Boggio
Rinaldo Plebani
Corrado Modugno
Simone Bongiovanni
Luigi Franzolin
Elena Cerbaro
M. Cristina Baldini
Giancarlo Revelli
Mauro Eccetto
Raffaele Borrelli

Fabio D'Angelo
Mirko Bergadano
Matteo Bellemo
Matteo Maccagnan
Daniele Cernuzzi
Stefano Manconi Dirrigi
Raffaella Barbuto

Francesco Fabio
Robert Scotti (US IP Att.)
Satsuki Takasaka

Andrea Bernotti
Paolo Lovino
Francesco Fiussello
Cesare Bosman
Stefania Berta
Bruno Zamprognio
Simone Mangini
Edoardo Mola
Lorenzo Nannucci
Manuela Giannini
Cristina Rolando
Andrea Fiorini
Michele Di Sciuva
Lidia Casciano
Alessandro Putzolu
Giovanni Lo Cigno
Gerardo Valeriano

Legal Advisers:
Claudio Costa
Maria Teresa Saguatti
Chiara Luzzato
Alberto Improda
Raffaella Arista

Torino, May 9 2005

BY FAX (2 pages)

Our Case E-2261/04

Dear Sirs,

**RE: International Application No. PCT/IB2004/002219
Applicant: Fernando ERRIU
Examiner: C. SCHIPFLINGER**

Reference is made to the Written Opinion of the International Searching Authority dated October 06, 2004.

The Examiner's remarks have been duly taken into consideration and it is believed that the invention as claimed in the amended claims 1-15 already filed under Article 19(1) is both novel and inventive over the cited prior art.

New claim 1 has been drafted as a combination of original claims 1, 2 and 4. Neither of the cited documents discloses or suggests a fluid device for recovery of kinetic energy as claimed.

The closest prior art fluid device, considered to be the one disclosed in US4212598, comprises a resilient tube 18 housed inside a recess 14 placed transversally on a street and a rigid treadle 28 hinged on one lateral side of recesses 14 and covering tube 18 being inclined with respect to a surface 12 of the street. The known device further comprises a flap-like bearing member 24 narrower than treadle 28 and hinged to the street surface 12 on a lateral side of recess 14 opposite to mobile treadle 28.

During operation, the known device is repeatedly impacted by travelling vehicles and is pressed on an abutment surface that is connected with the external ambient and may collect small banks of debris causing an irregular contact and a distortion of the rigid treadle 28.

10121 Torino
Via Viotti, 9
Tel. +39-011.561.13.20
Fax. +39-011.562.21.02

20123 Milano
Corso Magenta, 56
Tel. +39-02.48.01.42.16
Fax +39-02.48.01.50.82

40133 Bologna
Via Emilia Ponente, 34
Tel. +39-051.38.91.22
Fax +39-051.38.90.30

31100 Treviso
Viale Appiani, 26
Tel. +39-0422.22.199
Fax +39-0422.23.316

00187 Roma
Via Due Macelli, 47
Tel. +39-06.67.91.589
Fax +39-06.67.97.747

Therefore a continuous monitoring of treadle 28 is required because a permanent deformation or an unpredicted breaking of treadle 28 would compromise stability and safety of travelling vehicles.

The use of an elastically deformable actuating member in direct contact with the tyres of the travelling vehicles allows a proper sealing against debris, thus enhancing the reliability of the device.

Furthermore, the elastically deformable actuating member is substantially aligned with the street course, which lowers the impact loads on the device and allows an efficient operation regardless the direction of motion of the travelling vehicles.

The device as claimed can be also used in railways whose bed and rails are inherently resilient and may be used to actuate a pumping unit. In this case, a railway can be equipped with reduced costs and the reliability of the device is compatible with the safety requirements needed in a railway. In fact there is no need for a supplementary actuating element in contact with the wheels of a travelling train, and the already existing rails and bed are used without any significant structural modification.

On the grounds of the above arguments, we believe that the international application should now be in compliance with the PCT provisions and hope that a positive international preliminary examination report may be established.

Should however the examiner still deem that the international application is not in compliance with the PCT provisions yet, he is kindly invited to contact us or issue a further written opinion in consideration of the bona fide efforts that have been made to explain our position.

Yours faithfully,

A handwritten signature in cursive script, appearing to read 'Franzolin'.

Luigi Franzolin

PCT APPLICATION NO. PCT/IB2004/002219 in the name of
Fernando ERRIU

C l a i m s

1. A fluid device (1; 20; 40; 50; 60; 70; 80; 90;
5 90'; 90'') for recovery of the kinetic energy of
vehicles, comprising an intake pipe (13), a delivery
pipe (15), and a pumping unit (7; 22), which is
connected to said intake pipe (13) and to said
10 delivery pipe (15) for sending fluid under pressure
from said intake pipe (13) to said delivery pipe
(15), at least one actuating element (5; 22; 44; 52;
62; 76; 108), which is set along a road or railway
course (3; 75) of a road or railway infrastructure
(3a; 71) for land vehicles, is connected to said
15 pumping unit (7; 22) and can move between a position
of unloading and a position of loading, in which said
at least one actuating element (5; 22; 44; 52; 62;
76; 108) is adapted to be surmounted by a vehicle
travelling along said road or railroad course (3;
20 75), said device being characterized in that said
actuating element (22; 76; 108) is elastically
deformable and has a contact surface (26) in contact
with said vehicles and substantially aligned to said
road or railroad course (3; 75).
- 25 2. The device according to Claim 1, characterized in
that said surface of contact (26) is substantially
plane, and in that said actuating element (22; 76;
108) comprises end portions (27) longitudinally set
opposite to one another and rigidly connected to said
30 road or railroad course (3; 75).
3. The device according to Claim 2, characterized in

that said actuating element (22) comprises a membrane, and defines, at the top, a first variable-volume chamber (23) connected to said intake line (13) and said delivery line (15).

5 4. The device according to Claim 3, characterized in that it comprises a honeycomb structure (103) for pumping connected to said intake line (13) and said delivery line (15), which defines a multiplicity of second variable-volume chambers (109) delimited, at
10 the bottom, by a supporting wall (100, 110) and co-operating, at the top, with said actuating element (22).

15 5. The device according to Claims 3 and 4, characterized in that said honeycomb structure (103) is set inside said first chamber (23), and in that each of said second variable-volume chambers (109) is delimited by rigid side walls (107), which come out of said supporting wall (100) and, at the top, from a deformable head membrane (108) connected in a fluid-tight way to said side walls (107) and co-operating
20 with said actuating element (22).

25 6. The device according to Claim 5, characterized in that said second variable-volume chambers (109) are delimited at the sides by a multiplicity of rigid separating walls (111), which are hinged to said actuation element (22) and to the supporting wall (110).

30 7. The device according to any one of the preceding claims, characterized in that said device is supported, at the bottom, by a base (101), which has a plurality of intake tanks or chambers (102) that

are fluid-connected to one another by said intake line (13).

8. The device according to any one of the preceding claims, characterized in that it comprises an elastic
5 element (24; 73), which co-operates with said actuating element (22; 76) and is designed to re-establish said unloading position.

9. The device according to any one of Claims 1 to 8, characterized in that said road infrastructure (3a)
10 is a street.

9. The device according to any one of claims 3 to 8, characterized in that said road infrastructure (71) is a railroad line comprising sleepers (74), in that said road course (75) comprises tracks, in that said
15 actuating element (76) comprises rails and in that said membrane (22) functionally cooperates with said rails.

10. The device according to any one of Claims 1 or 2, characterized in that said road infrastructure (71)
20 is a railroad, comprising a bed (73) and a multiplicity of sleepers (74) supported by said bed (73), in that said actuating element (76) comprises rails connected to said sleepers (74) and in that said pumping unit (7) is functionally connected to at
25 least one of said sleepers (74).

11. The device according to Claim 10, characterized in that it comprises an oscillating actuating member (62) connected to one of said sleepers (74) and said pumping unit (7).

30 12. The device according to any one of the preceding

claims, characterized in that it comprises a unit for generation of electric power (17, 18) connected to said delivery line (15).

5 13. The device according to any one of the preceding claims, characterized in that said fluid is hydraulic.

14. The device according to any one of the preceding claims, characterized in that said fluid follows a closed circuit (150).

10 15. The device according to any one of the preceding claims, characterized in that it comprises rigid elements (105, 107a) disposed below said actuating element (5; 22; 44; 52; 62; 76; 108) and supporting said actuating element (5; 22; 44; 52; 62; 76; 108)
15 in said loading position.

PCT APPLICATION NO. PCT/IB2004/002219 in the
name of Fernando ERRIU

STATEMENT UNDER ARTICLE 19(1)

5 The Examiner's remarks have been duly taken into
consideration and it is believed that the invention
as now claimed is both novel and inventive over the
cited prior art.

New claim 1 has been drafted as a combination of
10 original claims 1, 2 and 4. Neither of the cited
documents discloses or suggests a fluid device for
recovery of kinetic energy as claimed.

The closest prior art fluid device, considered
to be the one disclosed in US4212598, comprises a
15 resilient tube 18 housed inside a recess 14 placed
transversally on a street and a rigid treadle 28
hinged on one lateral side of recesses 14 and
covering tube 18 being inclined with respect to a
surface 12 of the street. The known device further
20 comprises a flap-like bearing member 24 narrower than
treadle 28 and hinged to the street surface 12 on a
lateral side of recess 14 opposite to mobile treadle
28.

During operation, the known device is repeatedly

impacted by travelling vehicles and is pressed on an abutment surface that is connected with the external ambient and may collect small banks of debris causing an irregular contact and a distortion of the rigid treadle 28.

Therefore a continuous monitoring of treadle 28 is required because a permanent deformation or an unpredicted breaking of treadle 28 would compromise stability and safety of travelling vehicles.

10 The use of an elastically deformable actuating member in direct contact with the tyres of the travelling vehicles allows a proper sealing against debris, thus enhancing the reliability of the device.

Furthermore, the elastically deformable
15 actuating member is substantially aligned with the street course, which lowers the impact loads on the device and allows an efficient operation regardless the direction of motion of the travelling vehicles.

The device as claimed can be also used in
20 railways whose bed and rails are inherently resilient and may be used to actuate a pumping unit. In this case, a railway can be equipped with reduced costs and the reliability of the device is compatible with the safety requirements needed in a railway. In fact

there is no need for a supplementary actuating element in contact with the wheels of a travelling train, and the already existing rails and bed are used without any significant structural modification.